REMARKS

Claims 1-20 are in the case. Claim 10 is objected to. Claims 1-20 are rejected under 35 USC § 103 over what is referred to in the office action as "applicants admitted prior art (AAPA)" in view of USPN 6,674,510 to Jasper et al. and further in view of USPN 6,038,029 to Finarov. Claims 1, 9, and 16 have been amended. No new matter has been introduced by the amendments, which are supported by the disclosure of the original claims and the specification. Reconsideration and allowance of the claims are respectfully requested.

CLAIM OBJECTIONS

Claim 10 is objected to. Applicants have hereby corrected the typographical error in claim 10. Reconsideration and allowance are requested.

CLAIM REJECTIONS UNDER §103

Claims 1-20 are rejected AAPA in view of Jasper et al. and further in view of Finarov. Independent claim 1 claims, *inter alia*, an integrated inspection system having a first inspection station at a first known location for performing a first inspection at a first resolution, a controller to determine and track position information associated with the defect sites, a second inspection station at a second known location for performing a second inspection at a second higher resolution, and a substrate stage to move the substrate between the first inspection station and the second inspection station, where the controller positions the substrate stage at the identified defect candidate sites under the second inspection station using known coordinates of the first known location, the second known location, and the position information associated with each of the identified defect candidate sites, and without re-acquiring a coordinate system of the first inspection station when the substrate is transferred to the second inspection station.

Applicants first compare the primary reference against the elements of the claim as recited above, to determine wherein the primary reference is deficient. Then the secondary references are analyzed to determine whether they compensate for the deficiencies detected in the primary reference. If all of the references are deficient as to

the same element or combination of elements, then the claim is patentable over the cited references.

The AAPA describes that, previously, some inspections were accomplished using two separate tools, where the first inspection tool was a lower resolution instrument than the second inspection tool, and the substrate was manually transferred between the two tools. The first inspection tool could be an optical instrument. The substrate had to be recalibrated as to position on the second inspection tool before any of the defects that were found on the first inspection tool could be located on the second inspection tool.

Thus, the AAPA is deficient in several regards. The AAPA does not describe: (1) a stage that can go back and forth between the two measurement instruments; (2) a controller that determines and tracks position information associated with the defect sites; and (3) a controller that positions the stage at the second inspection station by using known information and without re-acquiring a coordinate system of the first inspection station. The secondary references must describe each of these three elements in a manner that is permissibly combinable with the primary reference, or a prima facia case of unpatentability will not have been made out.

Jasper et al. does not compensate for the deficiencies of the AAPA in that Jasper et al. does not provide any incentive or teaching to combine two inspection stations into a single inspection system in the manner as claimed. Jasper et al. describe a projection aligner. The aligner has a projection system, a measurement system, and a substrate transport system that moves the substrate from the measurement system to the projection system. However, this does not make a combination of two inspection systems obvious, where one inspection system has a higher resolution than the other. Nor does it make obvious the controller that determines and tracks position information associate with defect sites, as Jasper et al. does not find any defect sites at all. Further, Jasper et al. does not make obvious the use of the known information to find a defect site on a second inspection tool with re-acquiring a coordinate system.

Jasper et al. do indeed describe that the aligner can have more than one measurement system and more than one projection system, but do not at any place describe that there is any movement of a single substrate between more than one measurement system, or that the measurement systems have different resolutions. That is

because Jasper et al. contemplate multiple similar measurement systems feeding one or more projection system, so as to speed up the alignment process, which is the stated goal of the aligner of Jasper et al. Thus, Jasper et al. provide no motivation for making a combination of two inspection stations with different resolutions.

Finarov also does not remedy these deficiencies. Finarov does not disclose multiple measurement systems, or a stage that moves a substrate between different measurement systems. Finarov moves the substrate under a single optical system, to find a notch or flat or other positional mark on the substrate.

Because Jasper et al. nor Finarov detect candidate defect sites on the substrate, it is hard to envision any realistic combination of the two references with the AAPA. Except for the fact that all three pieces of equipment are used in the integrated circuit fabrication industry and hold a substrate, there is hardly any similarity between them. The AAPA describes inspection systems, Jasper et al. describe an exposure apparatus, and Finarov describe a notch finder. Again, applicants assert that there is no logical combination of the three tools. However, even if there were, they are still deficient as to the elements described above.

Thus, claim 1 patentably defines over the AAPA in view of Jasper et al. and further in view of Finarov. Reconsideration and allowance of claim 1 are respectfully requested. Dependent claims 2-8 depend from independent claim 1, and contain additional important aspects of the invention. Therefore, dependent claims 2-8 patentably define over the AAPA in view of Jasper et al. and further in view of Finarov. Reconsideration and allowance of dependent claims 2-8 are respectfully requested.

Claim 9 claims, *inter alia*, a method for inspecting a substrate by a) positioning the substrate at a first inspection station, b) imaging the substrate at a first resolution, c) identifying defect candidate sites, d) determining and tracking position information, e) positioning the substrate at a second inspection station, and f) imaging the defect candidate sites, where the substrate is positioned at the identified defect candidate sites under the second inspection station using known coordinates of the first inspection station and the second inspection station, and the position information associated with each of the identified defect candidate sites, and without re-acquiring a coordinate system of the first inspection station when the substrate is positioned at the second inspection station.

Thus, claim 9 recites a combination of limitations that is similar to that of claim 1. The cited combination of the AAPA, Jasper et al., and Finarov do not describe such a method. Specifically, the cited combination does not describe the common stage moving between two inspection stations, where the substrate is positioned using known coordinates of the first and second inspection stations and without re-acquiring a coordinate system.

Thus, claim 9 patentably defines over the AAPA in view of Jasper et al. and further in view of Finarov. Reconsideration and allowance of claim 9 are respectfully requested. Dependent claims 10-15 depend from independent claim 9, and contain additional important aspects of the invention. Therefore, dependent claims 10-15 patentably define over the AAPA in view of Jasper et al. and further in view of Finarov. Reconsideration and allowance of dependent claims 10-15 are respectfully requested.

Claim 16 claims, *inter alia*, a method for optimizing inspection parameters by a) positioning a substrate at a first inspection station, b) imaging the substrate at a first resolution, c) identifying defect candidate sites based on the inspection parameters, d) determining and tracking position information associated with each of the identified defect candidate sites, e) positioning the substrate at a second inspection station, f) imaging the sites at a second greater resolution, where the substrate is positioned at the identified defect candidate sites under the second inspection station using known coordinates of the first inspection station and the second inspection station, and the position information associated with each of the identified defect candidate sites, and without re-acquiring a coordinate system of the first inspection station when the substrate is positioned at the second inspection station, g) reviewing to determine which of the defect candidate sites are actual defect sites, and h) altering the inspection parameters based on the determination.

As described above, the cited combination of references does not disclose such a method. In addition, the cited combination of references does not disclose identifying defect candidate sites based on the inspection parameters, and then altering the inspection parameters based on the determination of which of the defect candidate sites are actual defect sites.

Thus, claim 16 patentably defines over the AAPA in view of Jasper et al. and further in view of Finarov. Reconsideration and allowance of claim 16 are respectfully requested. Dependent claims 17-20 depend from independent claim 16, and contain additional important aspects of the invention. Therefore, dependent claims 17-20 patentably define over the AAPA in view of Jasper et al. and further in view of Finarov. Reconsideration and allowance of dependent claims 17-20 are respectfully requested.

COMBINATION OF REFERENCES

The MPEP outlines three conditions that must be met for a *prima facia* case of obviousness to be made out. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations.

1. Motivation

The present claims are directed toward a novel method and apparatus for inspecting a substrate and altering inspection parameters. Thus, the claims recite certain elements in combination. Applicants do not at this time assert that any one of these elements, taken alone, is completely novel. However, "[c]ombination claims can consist of new combinations of old elements . . . for it may be that the combination of the old elements is novel and patentable." *Clearstream Wastewater Sys. v. Hydro-Action, Inc.*, 206 F.3d 1440, 1444, 54 USPQ2d 1185, 1189 (Fed. Cir. 2000); *Intel Corp. v. U.S. Int'l Trade Comm.*, 946 F.2d 821, 842, 20 USPQ2d 1161, 1179 (Fed. Cir. 1991) ("That all elements of an invention may have been old . . . is however, simply irrelevant. Virtually all inventions are combinations and virtually all are combinations of old elements.").

Thus, it might be possible to find each and every element somewhere in the prior art, such as with a key word search of a computerized database. However, doing such a search would merely yield a laundry list of the basic elements from which the various embodiments of the present invention are constructed, without any motivation to make

the combinations such as are described in the claims. Thus, applicants assert that they have combined these possibly-known elements in a novel and nonobvious manner.

The elements from the references that are combined in the office action are selectively lifted in a combination and in a manner that is not supported by the references. Only those elements that are common with the present claims have been selected, and then arranged in a manner where they align somewhat with the present claims. The question must be answered, "what was obvious about selecting that special set of elements from three references that describe dissimilar pieces of equipment?" This question has not been adequately answered.

There must be a proper motivation for making the selection and combination of the elements from the cited references. Applicants assert that without the proper motivation, the combination of elements as recited by the examiner is not obvious. As noted above, the mere fact that various elements ***could be*** placed in combination is not a sufficient motivation for actually making the combination. An infinite number of different elements ***could be*** placed in combination, but in order to make the present combination obvious, there must be an allowable motivation to make the combination.

Applicants assert that the prior art does not provide the motivation for combining the elements as claimed in the present invention. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d (BNA) 1566 (Fed. Cir. 1990) states that the PTO erred in rejecting a claimed invention as an obvious combination of the teaching of prior art references when the prior art provided no teaching, suggestion, or incentive supporting the combination. *See Northern Telecom Inc. v. Datapoint Corp.*, 15 U.S.P.Q.2d 1321, 1323, *In re Geiger*, 2 U.S.P.Q.2D 1276, 1278. *SmithKline Diagnostics, Inc. v. Helena Laboratories Corp.*, 859 F.2d 878, 887, 8 U.S.P.Q.2d (BNA) 1468, 1475 (Fed. Cir.1988) states that one "cannot pick and choose among the individual elements of assorted prior art references to recreate the claimed invention."

There is nothing in the prior art that would lead a person of ordinary skill to create a combination of elements such as that presently claimed. The office action recites certain generalized benefits as the motivation for the specific combination of the elements in the cited references. However, these generalized benefits are not obvious from looking at all of the elements described in the cited references. Only after considering the

invention as claimed is it understood that combining the elements in the manner as claimed tends to produce the benefits. Thus, it appears that the hindsight knowledge of this invention was the motivating force for the combination.

This, however, does not satisfy Section 103. The motivation to combine references cannot come from the invention itself. *See In re Oetiker*, 24 U.S.P.Q.2D 1443, 1446. The claims of the present application appear to have been used as a frame, and individual parts of separate prior art references were employed to recreate a facsimile of the claimed invention. *See W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 312. The examiner has the burden to show some teaching or suggestion in the references to support their use in the particular claimed combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 5 U.S.P.Q.2D at 1438-1439. In the absence of such, applicants respectfully suggest that the references are improperly combined.

2. Expectation of Success

It is a requirement in making out a *prima facia* case of obviousness that there must be some expectation of success of the combination described in the office action. However, the proposed combination would have no such expectation of success. The reason for this is that the office action has combined the teaching of references that are sufficiently different, one from another, as to have no *expectation* of success by one skilled in the art. Specifically, the office action has combined references that deal with inspection systems, projection aligners, and notch finders. There is no expectation that a combination of such a disparate set of references would produce any successful apparatus.

The combination suggested in the office action is something akin to the combination of a tennis racquet and a golf club. Anyone can imagine such a device, and both of the contributing elements (the tennis racquet and the golf club) are from the same field of art – sporting equipment. The incentive to make the combination could be stated as providing the convenience of owning fewer pieces of equipment and of moving more quickly from the tennis courts to the golf course. But when realistically considered – rather than when considered in the abstract – no one foresees any utility to such a combination, or has any expectation that such a device would function successfully.

3. All Limitations Taught or Suggested

It is a requirement in making out a *prima facia* case of obviousness that all of the limitations of the claims must be taught or suggested by the cited references. However, some of the claimed elements have been omitted. For example, the examiner has omitted a stage that moves between two inspection tools, where one inspection tool has a high resolution. Also omitted are inspecting a substrate based upon inspection parameters, and then altering the parameters based upon a determination of actual defects.

Thus, applicants assert that a *prima facia* case of obviousness has not been made out.

CONCLUSION

Applicants assert that the claims of the present application patentably define over the prior art made of record and not relied upon for the same reasons as given above. Applicants respectfully submit that a full and complete response to the office action is provided herein, and that the application is now fully in condition for allowance. Action in accordance therewith is respectfully requested.

In the event this response is not timely filed, applicants hereby petition for the appropriate extension of time. If any fees are required by this amendment, such fees may be charged to deposit account 12-2252.

Sincerely,

LUEDEKA, NEELY & GRAHAM, P.C.

By: 

Rick Barnes, 39,596

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